

Transistor with Doped Gate Dielectric

ABSTRACT OF THE DISCLOSURE

A transistor and method of manufacture thereof. A semiconductor workpiece is doped before depositing a gate dielectric material. Using a separate anneal process or during subsequent anneal processes used to manufacture the transistor, dopant species from the doped region of the workpiece are outdiffused into the gate dielectric, creating a doped gate dielectric. The dopant species fill vacancies in the atomic structure of the gate dielectric, resulting in a transistor having increased speed, reduced power consumption, and improved voltage stability.